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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MEW, KEVIN D

ART UNIT	PAPER NUMBER
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2664

DATE MAILED: 10/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/599,000

Applicant(s)

DAVIS, ARLIN R.

Examiner

Kevin Mew

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June, 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 June, 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Specification

1. The disclosure is objected to because of the following informalities:

Wrong numbering of the element 21 on page 7, lines 8 and 19. The element 21 should be changed to 19 in order to match the element shown in Figure 1B.

Wrong numbering of the element 19 on page 7, lines 8 and 19. The element 19 should be changed to 21 in order to match the element shown in Figure 1B.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "19" has been used to designate both the "Send Queue" and the "Receive Queue" in Figure 1A and Figure 1B. The same objection applies to reference character "21", which has been used to designate both the "Send Queue" and the "Receive Queue" in Figure 1A and Figure 1B. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-20, 27** are rejected under 35 U.S.C. 102(b) as being anticipated by immediate prior art, Data and Computer Communications, Fifth Edition, William Stallings, 1997.

With respect to claims 1, 6, 10-11, 16-20, 27, Stallings discloses an apparatus at an ATM host (**local host**) comprising a LAN emulation module (**an emulation driver**, see 490, Figure 14.14) coupled to AAL5 (**channel adapter** comprising AAL5, ATM, and Physical Layer, see 490, Figure 14.14). While the LAN emulation module converts MAC frames (**legacy physical address**, see 490, lines 3-8) to ATM cells, AAL5 segments MAC frames (**local physical address**, see 490, lines 3-8) into a plurality of ATM cells (**a virtual interface**) wherein each ATM cell contains virtual channel identifiers (**channel adapter mapping local physical address of the remote node**, ATM-to-LAN converter, **to a VI channel**, see on 490, Figure 14.14). It is inherent that a virtual channel comprises memory buffers (**VI work queue**) as storage means to store memory address information. In addition, it is inherent that AAL5 (**channel adapter**) is coupled to some memory buffers so as to allocate memory to each ATM cell (**VI work queue**). Stallings further discloses the channel adapter at the local node interfaces with the ATM switch (**channel adapter to interface the host to a switch fabric**, see 490, Figure 14.14).

With respect to claims 2-4, 7-9, Stallings discloses an ATM-to-LAN converter (**a remote node**, see 490, Figure 14.14) comprises an ATM layer

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(**local physical address**, see 490, lines 3-8), which is provided with a MAC layer (**legacy physical address**, see 490, lines 3-8). In addition, Stallings discloses an Ethernet frame can be used as the MAC frame (see Ethernet or Token Ring host, IEEE 802.3 Ethernet MAC address on 490, Figure 14.14).

With respect to claim 5, a TCP/IP protocol stack (**legacy protocol stack**, see 490, Figure 14.14) is coupled to LAN emulation module (**emulation driver**, see 490, Figure 14.14). In addition, it is well known that an ARP protocol, a low level protocol within TCP/IP, is used to obtain the MAC address from a known IP address. An ARP request with the IP address is broadcast onto the network. The node on which the IP address (**network address**) resides responds with the MAC address (**legacy physical address**) of the node (**mapping a network address to a legacy physical address**).

With respect to claims 12-13, Stallings discloses a physical layer, a component of a channel adapter at the host node, interfaces with an ATM switch. It is inherent the physical layer typically comprises a NIC interface (**channel adapter comprises an ATM NIC for interfacing to an ATM network**).

With respect to claims 14-15, it is well known that an ARP protocol, a low level protocol within TCP/IP, is used to obtain the MAC address from a known IP address. An ARP request with the IP address is broadcast onto the network. The node on which the IP address resides responds with the MAC address of the node. Stallings discloses a LAN emulation module converts MAC frames (**first physical address**, see 490, lines 3-8) to ATM cells (**second physical address**, see 490, lines 3-8) without use of a specialized protocol.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 21-26, 28-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stallings.

With respect to claims 21-24, Stallings discloses an apparatus at an ATM host (**first node**, see 490, Figure 14.14) comprising a LAN emulation module coupled to AAL5 (ATM Adaptation Layer). The LAN emulation module in the first node converts MAC frames (**global physical address**, see 490, lines 3-8) to and from ATM (**local physical address**, see 490, lines 3-8) cells (**obtaining a local physical address for a first node and obtaining a local physical address for other node, obtaining a legacy or global physical address for the first node**), AAL5 segments MAC frames into a plurality of ATM (**local physical address**) cells wherein each ATM cell contains virtual channel identifiers (**establishing a connection-oriented VI channel between first node and each of the one or more nodes**). It is well known that an RARP (Reverse Address Resolution Protocol) protocol, a low level protocol within TCP/IP, is used to obtain the IP address (**network address**) from a known MAC address. An

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RARP request with the MAC address is broadcast onto the network. The node on which the MAC address resides responds with the IP address of the node **(using a legacy protocol to broadcast a request message to obtain a network address of the first node)**.

With respect to claim 27, Stallings discloses an apparatus at an ATM host **(first node, see 490, Figure 14.14)** comprising AAL5 (ATM Adaptation Layer, see 490, Figure 14.14). AAL5 segments MAC frames into a plurality of ATM cells wherein each ATM cell contains virtual channel identifiers **(establishing a VI channel between first node and each of a plurality of other nodes, ATM-to-LAN converters, see 490, Figure 14.14)**. Also, it is well known that an ARP (Address Resolution Protocol) protocol, a low level protocol within TCP/IP, is used to obtain the MAC address **(global physical address)** from a known IP **(network address)** address **(using a legacy protocol to broadcast a request message over VI channels including network address)**. An ARP request with the IP address is broadcast onto the network. The node on which the IP address resides responds with the MAC address of the node **(receiving a response message including the global physical address)**. Stallings discloses a LAN emulation module converts ATM cells **(local physical address)** to MAC frames **(legacy physical address)** without use of a specialized protocol.

With respect to claims 25-26, 28-29, Stallings discloses MAC frames can be transmitted over a virtual channel in multicast **(many-to-many work queue bindings between the first node and the one or more other nodes in the network, see 490, lines 3-8)** and unicast **(one-to-many work queue bindings**

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between the first node and the one or more other nodes in the network, see 490, lines 3-8).

With respect to claim 30, Stallings discloses an ATM-to-LAN converter (a **remote node**, see 490, Figure 14.14) comprises an ATM layer (**local physical address**, see 490, lines 3-8), which is provided with a MAC layer (**legacy physical address**, see 490, lines 3-8).

With respect to claim 31, Stallings discloses an apparatus at an ATM host (**first node**, see 490, Figure 14.14) comprising AAL5 (ATM Adaptation Layer). AAL5 segments MAC frames (**local physical address**, see 490, lines 3-8) into a plurality of ATM cells wherein each ATM cell contains virtual channel identifiers (**establishing a VI channel between first node and each of a plurality of other nodes**, ATM-to-LAN converters, see 490, Figure 14.14). Stallings discloses an apparatus at an ATM-to-LAN Converter (**second node**, see 490, Figure 14.14) comprising a LAN emulation module coupled to AAL5. While the LAN emulation module in the second node converts MAC frames to ATM cells (**mapping global physical address of the second node to a local physical address of the second node**, see 490, lines 3-8), AAL5 segments MAC frames into a plurality of ATM cells wherein each ATM cell contains virtual channel identifiers (**mapping local physical address of the second node, ATM-LAN converter, to VI channel**, see 490, Figure 14.14). It is also inherent that a communication message would be sent from the first node to the second node over the established VI channel (**sending the message to the second node over the established channel**).

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With respect to claim 32, Stallings discloses ATM layer (**global physical address**, see 490, lines 3-8), which is provided with the MAC layer (**local physical address**, see 490, lines 3-8).

With respect to claim 33, Stallings discloses an apparatus at an ATM host (**first node**, see 490, Figure 14.14) comprising AAL5 (ATM Adaptation Layer). AAL5 segments MAC frames into a plurality of ATM cells wherein each ATM cell contains virtual channel identifiers (**establishing a VI channel**, see 490, lines 3-8). Stallings also discloses an end system of an ATM-LAN emulation network generates its own MAC frames for broadcast where these MAC frames must be transmitted over a virtual channel (**generating a message to be sent and sending the message using broadcast via VI channels**, see 494, lines 35-44).

However, Stallings does not specifically disclose the use of LAN emulation module as a method to obtain both local physical addresses and legacy physical addresses, nor does it disclose the use of the AAL5 as a method to map local physical addresses to connection-oriented VI channels. Furthermore, Stallings does not specifically disclose the use of RARP protocol to broadcast a request message to establish VI channels between nodes. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made that the LAN emulation module, AAL5, RARP as disclosed by Stallings would have provided a method to obtain local physical addresses, VI channel establishment, and IP address from global physical address, respectively. The motivation to do so is to obtain local physical addresses, global physical addresses, and IP addresses of a network node because establishing virtual

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channel communication between network nodes over ATM LAN relies upon mapping these addresses from one to another.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to ATM LAN Emulation:

US Patent 5949783 to Husak

US Patent 5946313 to Allan

US Patent 5633869 to Burnett

US Patent 6041063 to Povlsen

US Patent 6490259 to Agrawal

US Patent 6345055 to Frick

US Patent 6223149 to Margulis

US Patent 6226297 to Alexander

US Patent 6611525 to Natanson

US Patent 6493345 to Margulis

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 703-305-5300. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 703-305-4366. The

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fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



RICKY NGO
PRIMARY EXAMINER

KDM Art Unit 2664